WOOL PRODUCTION & HARVESTING

Shepherd’s Clinic
Christen Jackson
Wool Development

- Follicles
  - Primary
  - Secondary

Table 1. Follicle Density, S/P Ratios, and Range of Average Fiber Diameter in Different Breeds of Sheep

<table>
<thead>
<tr>
<th>Breed</th>
<th>Mean No. of Follicles/mm²</th>
<th>S/P</th>
<th>Average Fiber Diameter Range (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Merino</td>
<td>71.7</td>
<td>19.1</td>
<td>19-20</td>
</tr>
<tr>
<td>Medium Merino</td>
<td>64.4</td>
<td>21.0</td>
<td>21-22</td>
</tr>
<tr>
<td>Strong Merino</td>
<td>57.1</td>
<td>16.5</td>
<td>23-26</td>
</tr>
<tr>
<td>Corriedale</td>
<td>28.7</td>
<td>10.8</td>
<td>25-31</td>
</tr>
<tr>
<td>Southdown</td>
<td>27.8</td>
<td>6.3</td>
<td>24-29</td>
</tr>
<tr>
<td>Dorset</td>
<td>18.5</td>
<td>5.4</td>
<td>26-32</td>
</tr>
<tr>
<td>Suffolk</td>
<td>20.4</td>
<td>4.8</td>
<td>26-33</td>
</tr>
<tr>
<td>Romney</td>
<td>22.0</td>
<td>5.5</td>
<td>32-39</td>
</tr>
<tr>
<td>Border Leicester</td>
<td>15.8</td>
<td>4.4</td>
<td>30-38</td>
</tr>
<tr>
<td>Lincoln</td>
<td>14.6</td>
<td>5.4</td>
<td>34-41</td>
</tr>
<tr>
<td>Cheviot</td>
<td>14.6</td>
<td>4.5</td>
<td>27-33</td>
</tr>
<tr>
<td>Wiltshire</td>
<td>11.4</td>
<td>3.3</td>
<td>26-31</td>
</tr>
</tbody>
</table>

Figure 7. Cross-sectional representation of a medullated wool fiber.
Structure

Figure 12. Diagrammatic Representation of the Chemical Structure of the Wool Fiber.
Wool Quality

• Fiber Diameter
• Staple Length
• Fiber Strength
• % Colored
• Consistency
Fiber Diameter

- Fineness
- Thickness of the wool fiber
- Measure in microns
  - One millionth of a meter: μ
Grade refers to the relative diameter of the wool fibers (fineness).
Fiber Diameter/Consistency

Britch Breech (hairy) ➔ Shorter ➔ Coarser ➔ Short, dirty
Short, dirty, kinky
Fiber Length

Coarse wools are usually longer than finer wools.
Fiber Length

Staple length adds weight to the fleece more than any other characteristic.

Look for **uniformity** of length
Fiber Strength

- Strength of yarns
- “tender or broken wool”
- Causes
- Reduction in price
Colored Fibers

• Black or Naturally Colored
• 10 fibers in 100 g of top wool
  – Loss of 5 – 20%
• Separate black and whites
  – Range: Markers
  – Crossbreds
Wool Grades

• Blood System
• Spin Count System
• Micron System
Wool Grades

Blood – percent finewool breed

Spinning Count – hanks/lb (560y)

Micron – diameter of fiber (25400 per inch)
Preparation Steps for Wool Quality Improvement
Management

- Labor
- Space
- Necessary equipment
- Clean facilities
- Contact shearer
- Contact wool classer
Prior to Shearing Day

• Pen in clean area
• With hold feed and water for at least 12 hours
• Separate by:
  – Colored
  – Breed
  – Age
Step 1: Minimize Wool Contamination

- Lowers overall yield
- Quality of wool clip
- Contaminants:
  - Natural
    - Urine and feces
  - Acquired
    - Vegetable Matter
    - Polypropylene twine
    - Colored fibers
    - Hair
  - Applied
    - Paint brands
    - Copper sulfate stain
Step 1: Continued

• Packaging/Labeling
  – New packaging materials
  – Proper labeling
    • Grower name
    • Line or type of wool
    • Individual bag number
    • Classer number (if applicable)
Step 2: Sort Sheep Before Shearing and Package Wool Separately

- Categories
  - Wool breeds
  - Dual or general purpose breeds
  - Meat breeds
  - Long wool and carpet breeds
  - Double coated and hair sheep crosses
  - Black or naturally colored
Step 3: Tags Out/Bellies Out Untied

- Remove belly wool
- Remove tags and top knots
- Fold fleece
Step 4: Full Table Skirt

- Skirting Table
  - Remove inferior wool
    - Stains
    - Tags
    - Belly wool
    - Vegetable matter

- Trained help
Step 5: Classing

- Only properly prepared wool
  - Bellies Out Untied and Full Table Skirted
- Trained Personnel
- Grouping like wools
  - Wool Quality
Certified Wool Programs

• Shearers
  – Certified Sheep Shearing Program
    • Reduce contamination
    • Shearing order
    • Wool preparation
    • Packaging and labeling
Certified Wool Programs

• Producers
  – Choice Wool Clip Program
  – Premium Wool Clip Program
Greasy vs. Clean Wool

• Greasy
  – Raw wool
  – Unscoured

• Clean wool
  – Portion of dirty wool free of VM, grease and mineral matter
  – Qualitative: Grade
  – Average fiber diameter or fineness
Yield

• Clean wool present after scouring
• Expressed as a percentage
• Variable
  – 40 – 70%
• Long wools
  – Higher yields due to less grease
• Bulky
  – Higher yields

Clean wool yield = Raw wool – shrinkage (VM, grease, impurities)
Markets

• Buyers
  – Groenewolds

• Wool Pools and Co-ops
  – Valley Wool Growers Association Inc.
  – Mid-States Wool Growers Cooperative Association

• Warehouses
Summary

• Bright future
• Simple steps
• Poly
• Take Responsibility
• Produce a Quality Product
Questions?